TITLE

WALKWAY BRACKET FOR USE WITH HELICAL ANCHOR

CROSS-REFERENCE TO RELATED APPLICATION

This application claims the benefit of U.S. provisional patent application serial no. 60/406,587 filed August 28, 2002.

BACKGROUND OF THE INVENTION

The present invention relates generally to a screw anchor apparatus and in particular 10 to a bracket for use with a helical anchor in supporting walkways.

Helical or screw anchors are well known. Helical anchors are utilized in the geotechnical industry to anchor building foundations in unstable soil and to stabilize and/or repair the integrity of existing foundations and the like. Walkways, such as environmental walkways, are utilized in environmentally sensitive areas, construction sites, excavation sites and other locations where it is advantageous for providing a walking surface that is above the level of the ground. These walkways are often supported by helical anchors due to poor site soil quality and to minimize the environmental impact of the walkway on the soil and vegetation in the area. The helical anchors are typically attached to the walkways by support brackets and the like. Often, the helical anchors and brackets must be disadvantageously designed and constructed on the construction site and are not easily adjustable for specific site conditions.

It is desirable, therefore, to provide an integrated support for a walkway supported by a screw anchor that is customizable at the construction site and reduces the amount of time required to install the walkway.

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SUMMARY OF THE INVENTION

A bracket apparatus for connecting and supporting a beam of a walkway and a battered helical anchor includes a beam restrainer portion having a generally horizontally extending bottom plate for supporting a beam and at least one generally vertically 30 extending side plate for attachment to the beam. A generally vertically extending shaft includes an upper end attached to the bottom plate and a lower end. The shaft includes a connecting plate attached thereto and extending radially therefrom. A connector assembly

includes an upper end for connecting to the connecting plate and a lower end for connecting to an upper end of the battered helical anchor.

The connector assembly of the present invention forms a robust connection between the restrainer portion and the battered helical anchor and, therefore, is operable to transmit 5 forces from the restrainer portion to the battered helical anchor. Because this robust connection, the walkway bracket apparatus is advantageously able to resist walkway movement in all directions. The present invention advantageously provides an apparatus that integrates a walkway support and a screw anchor assembly for supporting walkways in conjunction with the use of a helical anchor. The present invention also provides an apparatus that is easily adjustable for specific site conditions.

DESCRIPTION OF THE DRAWINGS

The above, as well as other advantages of the present invention, will become readily apparent to those skilled in the art from the following detailed description of a preferred embodiment when considered in the light of the accompanying drawings in which:

Fig. 1 is a perspective view of a bracket and anchor apparatus in accordance with the present invention before assembly; and

Fig. 2 is a perspective view of the bracket and anchor apparatus shown in Fig. 1 after assembly.

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DESCRIPTION OF THE PREFERRED EMBODIMENT

A bracket and anchor apparatus 10 is shown in Figs. 1 and 2 for use in supporting walkways (not shown). The apparatus 10 includes a bracket 11, a connector assembly 12 and a battered helical anchor 13. The bracket 11 has a beam restrainer portion 14 formed in 25 a generally U-shape for retaining a generally horizontally extending beam (typically wooden and not shown) which supports a floor of a walkway (not shown). The restrainer 14 has a horizontally extending bottom plate 14a upon which the beam rests and a pair of spaced apart vertically extending beam restraining side plates 14b restraining sideways movement of the beam. A plurality of apertures 14c are formed in the side plates 14b for receiving fasteners (not shown) for securing the beam to the restrainer 14. The apertures 14c may be formed so as to receive fasteners that pass through each of the side plates 14b and the beam. Alternatively, the apertures 14c may be formed so as to receive fasteners,

such as screws or the like, that are embed in the beam while passing through only one of the side plates 14b. The dimensions of the restrainer 14 including the spacing between the side plates 14b can be selected to coordinate with the size of the beam to be supported. Although the restrainer 14 is shown formed as an integral part, one or both of the side plates 14b could be movably attached to the bottom plate 14a to accommodate different width beams, or a single side plate 14b could be located centrally on the bottom plate 14a to receive a beam on either side thereof. For example, the restrainer 14 could be formed as a pair of generally L-shaped members each including one of the side plates 14b and a bottom plate (similar to the bottom plate 14a) with the bottom plates overlapped to form a 10 generally U-shaped member. One or both of the bottom plates would include an elongated bolt hole for receiving a bolt thereby adjustably positioning and securing together the L-shaped members.

The bottom plate 14a is attached to an upper end 15a of a vertically extending shaft 15 either fixedly, such as by a welded connection, or removably, such as with suitable 15 fasteners or the like. The shaft 15 is hollow and has an open lower end 15b sized to slip over an upper end of a typical helical anchor when used in a conventional manner. A connecting plate 16 extends radially from a central portion of the shaft 15 and has an aperture 17 formed therein. Preferably, the connecting plate 16 is welded to the central portion of the shaft 15. The connecting plate 16 extends in a plane that is between 20 horizontal and vertical, such as an approximately 45° angle relative to a horizontal plane of the bottom plate 14a which plane is parallel to a longitudinal axis 18 of the restrainer 14. Also, the connecting plate 16 extends radially from the shaft 15 along an axis 19 that is at an approximately 45° horizontal angle relative to the longitudinal axis 18. Although 45° angles are used in this example, the two angles can be different and any suitable angles and 25 directions can be used. The orientation of the connecting plate 16 advantageously permits the battered anchor 13 to resist walkway movement in all directions.

The connector assembly 12 has a U-shaped bracket 20 with a central portion 20a connecting a pair of legs 20b. The legs 20b receive an upper end 13a of the battered anchor 13 therebetween. Both the legs 20b and the upper end 13a have an aperture 13b formed therein for receiving a fastener 21 to attach the connecting bracket 12 to the anchor 13. A threaded rod 22 has a lower end 22a that extends through an aperture formed in the central portion 20a and engages the upper end 13a. A first nut 23 and a second nut 24

threadably engage the rod 22 on opposite sides of the central portion 20a and, when the bracket and anchor apparatus 10 is assembled, are rotated into contact with the central portion 20a to fix the rod 22 in place. With the rod 22 fixed in placed, the bracket and anchor apparatus 10 is in a state suitable to be connected to the beam restrainer portion 14.

5 During assembly, an upper end 22b of the rod 22 is inserted into the aperture 17, best seen in Fig. 2, and a third nut 25 on the rod 22 is rotated into contact with a lower surface of the connecting plate 16 to transfer a compression load from the bracket 11 through the connector assembly 12 to the upper end 13a of the anchor 13. A fourth nut 26 (shown in Fig. 1 and unattached) is threaded onto the upper end 22b and rotated into 10 contact with an upper surface of the connecting plate 16 to transfer a tension load from the bracket 11 through the connector assembly 12 to the upper end 13a of the anchor 13. The nuts 23, 24, 25, and 26 allow the apparatus 10 to be adjusted on the construction site, advantageously providing greater flexibility when the apparatus 10 is installed. The nuts 25 and 26 cooperate with the threaded rod 22 to accommodate differences in the spacing 15 between each of the connecting plates 16 and the upper end 13a of the associated screw anchor 13 at the installation locations along a walkway. When assembled, the connector assembly 12 forms a robust connection between the restrainer portion 14 and the battered helical anchor 13 and, therefore, is operable to transmit forces from the restrainer portion 14 to the battered helical anchor 13, allowing the apparatus 10 to resist walkway movement 20 in all directions.

In accordance with the provisions of the patent statutes, the present invention has been described in what is considered to represent its preferred embodiment. However, it should be noted that the invention can be practiced otherwise than as specifically illustrated and described without departing from its spirit or scope.